REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 24 and 27-47 are pending in the present application. No claims are amended by the present amendment, thus, no new matter is added.

In the outstanding Office Action, Claims 24 and 27-47 were rejected under 35 U.S.C. §103(a) as unpatentable over Zinky et al. (U.S. Patent No. 6,480,879, hereinafter Zinky) in view of Neureiter et al. ("The BRAIN Quality of Service Architecture for Adaptable Services with Mobility Support", herein Neureiter) and Baugher (U.S. Pat. No. 5,644,715) and in further view of Jørgensen et al. ("Customization of Object Request Brokers by Application Specific Policies," herein "Jørgensen").

Addressing now the rejection of Claim 24-47 under 35 U.S.C. §103(a) as unpatentable over Zinky, Neureiter, Baugher and Jørgensen this rejection is respectfully traversed.

Claim 24 recites, in part,

> configure an application programming interface as a data model describing quality-of-service contracts and quality-of-service adaptation paths as specified by quality-of-service aware mobile multimedia applications using said application programming interface, in order to manage quality-of-service and mobility-aware for managing network connections with other applications, a quality-of-service adaptation path defining an adaptation policy identifying quality-of-service specifications and allows quality-of-service changes, and
>
> wherein said middleware is adapted to negotiate with communication peers to generate adaptation paths by having a specific adaptation path proposed by an initiator of communication peers being validated by each of other communication peers in accordance with a corresponding adaptation policy, and having each of said other communication peers respond with a counter offer that is limited to a definition of a subset of the specific adaptation path proposed by said initiator, to measure the actual quality-of-service, and to solve any quality-of-service problem by deciding which of the possible adaptations to perform, and

> wherein the adaptation paths are modeled as hierarchical finite state machines, each hierarchical finite state machine comprising:
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> a finite state machine associated with a User Context, a finite state machine associated with an Application Context nested in said finite state machine associated with said User Context and a finite state machine associated with a Session Context nested in said finite state machine associated with said Application Context,
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> wherein said User Context, said Application Context and said Session Context each identify an arrangement of quality-of-service specifications enforceable through a set of streams belonging to a given user, application and session, respectively.

Claim 47 recites similar features.

Zinky describes a system that determines a quality of service and regulates activity in a distributed system based on the determined quality of service. Neureiter describes a general architecture of a system enabling applications to specify QoS and adaptations for QoS violations. Baugher describes a system for coordinating distributed multimedia resources. However, as is acknowledged on page 3 of the outstanding Action, Zinky does not describe or suggest that the middleware is adapted to negotiate with communication peers to generate adaptation paths, as is recited in Claim 24. Further, as is acknowledged on page 4 of outstanding Action, the combination of Zinky and Neureiter does not describe or suggest that each of said other communication peers respond with a counter offer that is limited to a definition of a subset of the specific adaptation path proposed by said initiator.

In addition, it is further acknowledged on page 4 that the combination of Zinky, Neureiter and Baugher does not describe or suggest that the adaptation paths are modeled as hierarchical finite state machines, each hierarchical finite state machine comprising a finite state machine associated with a User Context, a finite state machine associated with an Application Context nested in said finite state machine associated with said User Context and a finite state machine associated with a Session Context nested in said finite state machine

associated with said Application Context. The User Context, said Application Context and said Session Context each identifying an arrangement of quality-of-service specifications enforceable through a set of streams belonging to a given user, application and session, respectively, as is recited in Claim 24.

Nevertheless, the outstanding Action relies on the newly cited Jørgensen as curing the deficiencies of Zinky, Neureiter and Baugher with regard to the claimed invention.

Jørgensen describes an architectural framework for customizing Object Request Broker (ORB) implementations to application-specific preferences in relation to various non-functional requirements. Customization is based on run-time selection between alternative component implementations.[1] The alternative "component implementations" are implementations of a common "component type" and are also called "component instances."[2] Application programmers are described as defining application specific policies (i.e. application specific preferences) for methods, the policies corresponding to QoS expectations and ORB component developers are described as defining component descriptors, the component descriptors corresponding to QoS guarantees delivered by component instances.[3] The application specific policies are enforced per remote method invocation.[4] The selection mechanism is implemented as a "variation point," whereby the variation point performs the selection on a per method invocation basis by comparing the policies with the component descriptors.[5] The qualifier "QoS" is used by Jørgensen to describe the content of the preference/policies.

The QoS used in Jørgensen to describe the non-functional requirements of applications or, more precisely, the non-functional requirements of the application's remote method invocations is quite different from QoS implemented in the context of multimedia

[1] Jørgensen, abstract.
[2] Jørgensen, section 2.11
[3] Jørgensen, section 2.2
[4] Jørgensen, section 2.2
[5] Jørgensen, section 2.3

applications. It is noted in this respect that the framework for customizing ORB implementations is applied in the domain of robotic control applications,[6] which is a quite a different field of research than QoS for (distributed) multimedia applications. Thus, Jørgensen is not related to the field of managing QoS for distributed multimedia applications.

In addition, Jørgensen does not describe or suggest the hierarchical finite state machine recited in Claim 24. For instance, Jørgensen does not use the term "hierarchical FSM" which is the one and only accepted scientific term for a hierarchical finite state machine. Applicants note that Jørgensen is a scientific publication concerned mainly with architectural and structural issues of ORB architecture and the use of a hierarchical FSM is a relevant architectural or structural issue that would have been addressed specifically if it were described in Jørgensen.

In addition, section 4.3.2 of Jørgensen describes a TransportBean that "is in itself a component framework with its own variation points." The architectural framework disclosed of Jørgensen is a component framework[7] and the TransportBean of Jørgensen is part of the architectural framework for customizing ORB implementations, as a result, the TransportBean is what is called a "nested structure." However, there is no description or suggestion that the architectural framework for customizing ORB implementations of Jørgensen is equivalent to an FSM or that the TransportBean is a FSM. Thus, section 4.3.2 of Jørgensen can not reasonably be asserted as describing a hierarchical FSM where one FSM is nested in another FSM. Moreover, there is clearly no description of a three stage hierarchy where one FSM is nested in another FSM which is again nested in still another FSM.

Jørgensen does describe an application specific component, namely the (application specific) policies defined by the application programmer. Further, these policies describe application specific "QoS specifications" (albeit of a different type, see above). However,

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[6] Jørgensen, abstract.
[7] Jørgensen, section 2.1, second paragraph, first sentence

Jørgensen does not describe or suggest a user specific component or a session specific component, as are described in the claimed invention. Therefore, Jørgensen does not render obvious a FSM associated with a Session Context nested in a FSM associated with an Application Context which in turn is nested in a FSM associated with a User Context, as is recited in the claimed invention.

Moreover, the user context, the application context and the session context of the claimed invention each identify an arrangement of QoS specifications enforceable through a set of streams belonging to a given user, application and session, respectively. In the context of multimedia applications, streams are known to be a continuous unidirectional flow of information;[8] examples are video streams, MPEG streams being the most popular. In contrast, Jørgensen, and in particular section 4.4 of Jørgensen cited in the outstanding Action, do not mention streams in any way, let alone a set of streams belong to a user, an application and a session is recited in the claimed invention.

Further, Jørgensen does not describe model adaption paths as hierarchical FSMs. An adaption path according to the claimed invention is an adaption policy identifying QoS specifications and which allows QoS changes. No element of Jørgensen is able to correspond to the adaption paths recited in the claimed invention. In Jørgensen, given a specific application, a QoS is provided that corresponds to the need of the application as codified in the policy of the application. No change of QoS is possible for the application. Such differences again show that the features of Jørgensen are totally different from the features of claimed invention.

Accordingly, Jørgensen does not describe or suggest that the adaptation paths are modeled as hierarchical finite state machines, each hierarchical finite state machine comprising a finite state machine associated with a User Context, a finite state machine

[8] See p. 15 of the description of the present application.

associated with an Application Context nested in said finite state machine associated with said User Context and a finite state machine associated with a Session Context nested in said finite state machine associated with said Application Context. The User Context, said Application Context and said Session Context each identifying an arrangement of quality-of-service specifications enforceable through a set of streams belonging to a given user, application and session, respectively, as is recited in Claim 24.

Thus, Jørgensen cannot be cited as curing the above noted deficiencies of Zinky, Neureiter and Baugher with regard to the claimed invention.

Accordingly, Applicants respectfully submit that Claim 24 and similarly Claim 47, and claims depending therefrom, patentably distinguish over Zinky, Neureiter, Baugher and Jørgensen considered individually or in combination.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 24 and 27-47, as amended, is patentably distinguishing over the cited art. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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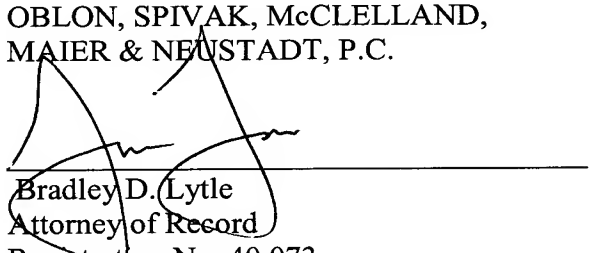

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